

Serial No. 10/511,630 2  
Docket No. NE297-PCT (US)

RECEIVED  
CENTRAL FAX CENTER  
JUN 05 2008

**AMENDMENTS TO THE CLAIMS:**

**Please amend the claims as follows:**

1. (Currently Amended) An optoelectronic hybrid integrated module comprising:

an optical device for converting one of an optical signal into an electric signal and an electrical signal into an optical signal;

an input/output IC for drive-controlling the optical device; and

a transparent base material having electric wiring and light permeability, the transparent base material including a light coupling means at a position substantially facing the optical device,

wherein the optical device and the input/output IC are flip-chip mounted on a surface of the transparent base material substantially aligned with the light coupling means, such that light coupling is performed in a direction other than a direction horizontal with respect to said transparent base material.

wherein light inputting/outputting between the optical device and an area outside of the integrated module is carried out due to the light permeability of the transparent base material, and

wherein the electric wiring connects the optical device and the input/output IC so as to transfer an electric signal between them, the electric wiring being positioned on a surface of the transparent base material opposite to the surface where the optical device is mounted, the electric wiring being provided as a ground electrode and serving as an electromagnetic shield for the optical device and the input/output IC,

wherein the optical device comprises at least one of a light emitting device which converts an electrical current signal into an optical signal and outputs said optical signal, and a

Serial No. 10/511,630 3  
Docket No. NE297-PCT (US)

light receiving device which converts an optical signal into an electrical current signal, and  
wherein the input/output IC comprises at least one of a driver IC that converts an  
electrical voltage signal into an electrical current signal and outputs the electrical current  
signal to the optical device and an amplifier IC which converts the electrical current signal  
from the light receiving device into an electrical voltage signal.

2-4. (Canceled)

5. (Previously Presented) The optoelectronic hybrid integrated module, as claimed in claim 1,  
wherein the transparent base material comprises a transparent plate transmitting a light, and  
the transparent plate comprises a material having high permeability to a wavelength of the  
optical device.

6. (Previously Presented) The optoelectronic hybrid integrated module, as claimed in claim 1,  
wherein the transparent base material comprises a flexible sheet transmitting a light, and the  
flexible sheet comprises a material having high permeability to a wavelength of the optical  
device.

7. (Canceled)

8. (Previously Presented) The optoelectronic hybrid integrated module, as claimed in claim 1,  
wherein the light coupling means is integrally formed with the transparent base material.

9. (Previously Presented) The optoelectronic hybrid integrated module, as claimed in claim 1,

Serial No. 10/511,630 4  
Docket No. NE297-PCT (US)

wherein the transparent base material includes an optical axis converter which converts a direction of an optical axis with reference to the light coupling means.

10. (Previously Presented) The optoelectronic hybrid integrated module, as claimed in claim 1, wherein the optical device and the input/output IC comprise an interposer which comprises a holder and a heat spreader.

11. (Original) The optoelectronic hybrid integrated module, as claimed in claim 1, wherein the transparent base material is fixed to a holding frame within which electric wiring is incorporated.

12. (Currently Amended) A light input/output apparatus comprising:

an optoelectronic hybrid integrated module and a logic LSI, wherein the optoelectronic hybrid integrated module includes:

an optical device for converting one of an optical signal into an electric signal and an electric signal into an optical signal;

an input/output IC for drive-controlling the optical device; and  
a transparent base material having electric wiring and light permeability, the transparent base material including a light coupling means at a position substantially facing the optical device;

wherein the optical device and the input/output IC are flip-chip mounted on a surface of the transparent base material substantially aligned with the light coupling means, such that light coupling is performed in a direction other than a direction horizontal with respect to said transparent base material.

Serial No. 10/511,630 5  
Docket No. NE297-PCT (US)

wherein light inputting/outputting between the optical device and an outside of the module is carried out due to the light permeability of the transparent base material,

wherein the logic LSI controls an electric signal input into or output from the optoelectronic hybrid integrated module,

wherein the optoelectronic hybrid integrated module and the logic LSI are mounted on a same substrate,

wherein the optical device comprises at least one of a light emitting device which converts an electrical current signal into an optical signal and outputs said optical signal, and a light receiving device which converts an optical signal into an electrical current signal, and

wherein the input/output IC comprises at least one of a driver IC which converts an electrical voltage signal into an electrical current signal and outputs the electrical current signal to the optical device and an amplifier IC which converts the electrical current signal from the light receiving device into an electrical voltage signal.

13-14. (Canceled)

15. (Previously Presented) The optoelectronic hybrid integrated circuit according to claim 1, wherein the optical device is sealed to the transparent base material devoid of an air gap.

16. (Previously Presented) The optoelectronic hybrid integrated circuit according to claim 1, wherein only the optical device is sealed to the transparent base material devoid of an air gap.

17. (Canceled)

Serial No. 10/511,630 6  
Docket No. NE297-PCT (US)

18. (Previously Presented) The optoelectronic hybrid integrated circuit according to claim 1, wherein the light coupling means comprises a convex lens formed on the transparent base material.

19-20. (Canceled)

21. (Previously Presented) The optoelectronic hybrid integrated circuit according to claim 12, wherein the electric wiring connects the optical device and the input/output IC so as to transfer an electric signal between them, the electric wiring being positioned on a surface of the transparent base material opposite to the surface where the optical device is mounted.

22. (Previously Presented) The optoelectronic hybrid integrated circuit according to claim 12, wherein, the electric wiring is provided as a ground electrode and serves as an electromagnetic shield for the optical device and the input/output IC.

23. (Previously Presented) An optoelectronic hybrid integrated module comprising:  
an optical device for converting at least one of an optical signal into an electric signal  
an electric signal into an optical signal;  
a transparent base material comprising a light inputting/outputting portion, said optical device being substantially aligned with the light inputting/outputting portion,  
wherein light inputting/outputting between the optical device and an outside of the module is carried out through said light inputting/outputting portion.

Serial No. 10/511,630 7  
Docket No. NE297-PCT (US)

24. (Previously Presented) The optoelectronic hybrid integrated module, as claimed in claim 1, wherein the light coupling means improves light coupling efficiency.